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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/926,347

10/17/2001

Shogo Ishioka

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06/09/2004

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EXAMINER

HOLLINGTON, JERMELE M

ART UNIT

PAPER NUMBER

2829

DATE MAILED: 06/09/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/926,347

Applicant(s)

ISHIOKA ET AL.

Examiner

Jermele M. Hollington

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10, 12, 13, 15 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-10 is/are allowed.
- 6) ☒ Claim(s) 12, 13, 15 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, an electrical terminal [claim 17] must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

2. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: there is no proper antecedent basis for the limitation “an electrical terminal” in the specification.

Claim Objections

3. Claim 15 is objected to because of the following informalities: in line 4 of the claim, the limitation “a conductive pattern of a circuit board in a non-contact manner” should be changed to -- the conductive pattern of the circuit board in said non-contact manner-- to avoid a duplicant positive recitation of the limitation in the claim since it depends off of claim 18. Appropriate correction is required.

4. Claims 17-19 is objected to because of the following informalities: in line 6 of claim 17, line 5 of claim 18 and line 7 of claim 19, the phrase “wherein an inspection” should be changed

to --wherein the inspection-- to avoid a duplicant positive recitation of the phrase in the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 13-13, 15 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Murphy et al (5702255).

Regarding claim 17, Murphy et al disclose [see Figs. 2-3] a holder (BGA socket assembly 10) for holding an inspection apparatus (BGA package 12), said holder comprising: a holding table (socket body 24); an elastic member (vias 30) provided on the holding table (24); a holding member (cover plate 28) mounted on the holding table (24); and a claw (tabs 54 or 55) provided on the holding member (28); wherein the inspection apparatus (12) having a step down portion (lower surface 22) is held on the elastic member (30), engaging the step down portion (22) between the elastic member (30) and the claw (54 or 55), and wherein the inspection apparatus (12) has an electrical terminal (ball contacts 20) on the outside surface thereof, thereby inspecting a conducting pattern (terminals pads 14) of a circuit board (printed circuit board 16) in the inspection apparatus (12) in a non-contact manner.

Regarding claim 12, Murphy et al disclose the claw (54 or 55) is adapted to contact a part of the inspection apparatus (12) so as to define the upper limit position.

Regarding claim 13, Murphy et al disclose a probe (contact assembly 26 with probe pin member 36) mounted on the holding table (24) and penetrating the elastic member (30) to contact an electrode (ball contacts 20) provided in the inspection apparatus (12), the probe (26) being elastically displaceable mounted on the inspection apparatus (12).

Regarding claim 18, Murphy et al disclose [see Figs. 2-3] a holder (BGA socket assembly 10) for holding an inspection apparatus (BGA package 12), said holder comprising: a holding table (socket body 24); an elastic member (vias 30) provided on the holding table (24); and an engaging member (conductive contact assemblies 26) provided on an upper surface of the elastic member (30); wherein the inspection apparatus (12) having a step down portion (lower surface 22) is held on the elastic member (30), engaging the step down portion (22) with the engaging member (26), and wherein the inspection apparatus (12) has an electrical terminal (ball contacts 20) on the outside surface thereof, thereby inspecting a conducting pattern (terminals pads 14) of a circuit board (printed circuit board 16) in the inspection apparatus (12) in a non-contact manner.

Regarding claim 19, Murphy et al disclose [see Figs. 2-3] a holder (BGA socket assembly 10) for holding an inspection apparatus (BGA package 12), said holder comprising: a holding table (socket body 24); an elastic member (vias 30) provided on the holding table (24); a probe (contact assembly 26 having probe pin member 36) on the holding table (24) to extend the upper surface of the elastic member (30); a holding member (cover plate 28) mounted on the holding table (24); and a claw (tabs 54 or 55) provided on the holding member (28); wherein the inspection apparatus (12) having a step down portion (lower surface 22) is held on the elastic member (30), engaging the step down portion (22) between the elastic member (30) and the claw

(54 or 55), and wherein the inspection apparatus (12) has an electrical terminal (ball contacts 20) on the outside surface thereof, thereby inspecting a conducting pattern (terminals pads 14) of a circuit board (printed circuit board 16) in the inspection apparatus (12) in a non-contact manner.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Murphy et al (5702255).

Regarding claim 15, Murphy et al disclose the holder (10) is adapted to hold said inspection apparatus (12), said the inspection apparatus (12) including a package inspection chip (planar body 52) for inspecting the conductive pattern (14) of the circuit board (16). However, they do not disclose the inspection apparatus (12) is in a slanted position as claimed. It is well

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known to make the holder of Murphy et al to hold the inspection apparatus in a slanted position where needed. It would have been an obvious matter of design choice to have the inspection apparatus in a slanted position since applicants have not disclosed that slanting the inspection apparatus solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the inspection apparatus not being slanted.

Conclusion

10. Applicants' arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Takahashi (6097202) Ngoi et al (6525331) and Fujii et al (6734692) disclose a method and apparatus for a inspecting a circuit board under test.

12. Claims 1-10 are allowed over the prior art.

13. The following is a statement of reasons for the indication of allowable subject matter: regarding claim 1, the prior art discloses all of the claimed invention except for an anisotropic conductor is thermo-compression bonded in between a conductive layer and a chip-side bump electrode.

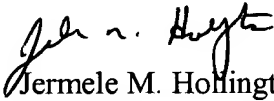
14. Regarding claim 9, the prior art discloses all of the claimed invention except for an anisotropic conductor is thermo-compression bonded in between a conductive layer and a chip-side bump electrode and an inspection signal is detected through a coupling capacitance lying between an inspection chip and a conductive pattern of a circuit board. Since claim 10 depends off of claim 9, it is also allowable.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jermele M. Hollington whose telephone number is (571) 272-1960. The examiner can normally be reached on M-F (9:00-4:30 EST) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamand Cuneo can be reached on (517) 272-1957. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jermele M. Hollington
Examiner
Art Unit 2829

JMH
June 3, 2004